

Therefore, reconsideration and withdrawal of this ground of rejection is respectfully requested.

Reconsideration of the rejection of claims 1-8, 23 and 24, under 35 USC 102(a, b or e), as anticipated by, or alternatively, under 35 USC 103(a), as unpatentably obvious, over any one of Kamo et al (5,585,173), Köppler et al (5,979,186), Sayce et al (5,985,779), Loxley et al (6,012,304), Bhandarkar et al (6,209,357) or Loxley et al (6,355,587) is respectfully requested in view of the following comments.

It is the Examiner's position that the failure of these references to teach pyrogenically produced silicon (which failure is not disputed) is not persuasive of patentability because the claims are directed to a sintered material made from the pyrogenically produced silicon.

Applicants respectfully disagree.

Kamo et al relates to high-purity opaque quartz glass. The glass is characterized by content of closed cells, ratio of closed cells having sizes of 100  $\mu\text{m}$  or more to the whole of the cells. The opaque quartz glass is prepared from amorphous silica powder having an average particle size of 0.5 to 10  $\mu\text{m}$ , preferably 3 to 7  $\mu\text{m}$  (see, e.g., col. 2, lines 47-49).

Accordingly, the disclosure of Kamo et al does not anticipate the present claims which use pyrogenically produced silicon dioxide which, as described on page 10 of the specification, refers to **nano**-scale powders.

Therefore, it is respectfully submitted that the sintered material formed from granulates of nano-scale powders cannot be substantially identical, before or after sintering, to a sintered material formed from compacted particles having an average size of 0.5 to 10  $\mu\text{m}$ .

The rejection based on Kamo et al should be withdrawn.

Köppler et al relates to manufacture of granular silica material which is characterized by being homogeneous, compact granular material with high purity and essentially consisting of spherical particles of uniform morphology (see col. 2, lines 3-6). The granular silica material may be sintered, however, there is no disclosure or suggestion that the granular mass is subjected to a forming or compacting procedure such that a tamped density of from 150 g/l to 800 g/l in one embodiment or from 220 to 700 g/l in a second embodiment, will be obtained.

Absent any disclosure or suggestion of a compacting step, the disclosure of Köppler et al, can neither anticipate nor render obvious, the pre-sintering composition or sintered material. Sintering a pre-sintering composition which has a tamped density of less than, for example, 150 g/l will not result in the same product as obtained by sintering granules having a tamped density of at least 150 g/l.

Accordingly, the disclosure of Köppler et al does not anticipate and would not have made *prima facie* obvious, the present invention, as set forth in claims 1-8 and 23-24.

Sayce et al relates to opaque quartz glass of enhanced opacity and produced by fusion of silica particles. This reference does not anticipate or otherwise render obvious a sintered material, produced by a forming or compacting process and comprising pyrogenically produced silicon dioxide which has been compacted to granulates having a tamped density of from 150 to 800 g/l, a granulate size of from 10 to 800  $\mu\text{m}$  and a BET surface area of from 10 to 500  $\text{m}^2/\text{g}$ ; or compacted pyrogenically produced silicon dioxide having the following physico-chemical properties:

mean particle diameter: from 25 to 120  $\mu\text{m}$ ,

BET surface area: from 40 to 400  $\text{m}^2/\text{g}$ ,

pore volume: from 0.5 to 2.5 ml/g,

pore distribution: no pores < 5 nm, only meso- and macro-pores are present,

pH value: from 3.6 to 8.5,

tamped density: from 220 to 700 g/l.

Absent any disclosure or suggestion of a compacting step, the disclosure of Sayce et al, can neither anticipate nor render obvious, the pre-sintering composition or sintered material. Sintering a pre-sintering composition which has a tamped density of less than, for example, 150 g/l will not result in the same product as obtained by sintering granules having a tamped density of at least 150 g/l.

Accordingly, the subject matter of claims 1- 8, 23 and 24 is not anticipated nor obvious in view of Sayce et al.

Loxley et al ('304) describes sintered quartz glass products and, more particularly, to the nitriding or nitridation of porous silica preforms (col. 7, lines 55-57) and involves the use of silica sols. There is no disclosure or suggestion of compacted pyrogenically produced silicon dioxide having the properties as set forth in the pending claims under rejection, and therefore, there is no implicit or inherent disclosure of the sintered materials of the present claims.

Accordingly, the subject matter of claims 1-8, 23 and 24, is neither anticipated by nor obvious in view of Loxley et al '304.

Bhandarkar et al describes a method for forming silica bodies useful for an optical fiber preform, using a sol-gel process. A precipitation process is employed in which silica precipitates at the contact sites of adjacent silica particles, thereby forming neck regions.

This reference does not disclose pyrogenically produced silicon dioxide which has been compacted to granules and, therefore, can neither expressly nor inherently anticipate nor make obvious the invention as disclosed and claimed herein. Again, the sintering of the dried gel described in this patent will not result in a sintered material corresponding to the material obtained by sintering compacted granules as claimed herein.

Accordingly, withdrawal of the rejection of claims 1-8 and 23-24, based on Bhandarkar et al is respectfully requested.

Finally, Loxley et al ('587) is substantially the same as Loxley et al '304 and for the same reasons fails to anticipate and would not have made obvious, the subject matter of the present invention.

Favorable reconsideration and withdrawal of the rejections under Sections 102 and/or 103 is, therefore, respectfully requested.

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Attached is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned **"Version with markings to show changes made"**.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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